

Remarks

Claims 1, 3, 5-10, 12-14, and 16-17 are currently pending, Claims 2, 4, 11, and 15 are cancelled, and Claims 1, 3, 12 through 14 and 17 are amended herein. The claims are amended herein to address the Examiner's requirements of form and to put the application in better form for allowance. Reconsideration is respectfully requested.

§ 112 Rejections

The Examiner rejected Claims 1 through 17 under 35 USC § 112, first paragraph, as failing to comply with the written description requirement. The Examiner indicated in the rejection that the "claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention".

Applicants respectfully disagree with the Examiner's rejection. Applicants' specification provides adequate information for one of skill in the art to choose an appropriate extractant(s) for use in Applicants' claimed invention. For example, page 4, line 8 through page 6, line 22 provides sufficient disclosure regarding the extractants that may be used in Applicants' claimed invention. Furthermore, as pointed out by the Examiner, Claims 3 and 13 recite specific organic extractants that may be used in Applicants' invention.

In summary, Applicants submit that the rejection of the Claims under 37 USC § 112, first paragraph, has been overcome, and that the rejection should be withdrawn.

§ 103 Rejections

The Examiner rejected Claims 1-17 under 35 USC § 103(a) as being unpatentable over the Combined teachings of Badische Anilin-& Soda-Fabrik AG (GB 1,167,793) and the teaching of Applicants' background of the specification, when taken with Changzhou et al (Huaxueshijie, 1997, 19(2), 77-79). Applicants disagree with the rejection for the following reasons.

Neither the statement in Applicants' background nor GB 1,167,793 either individually or in combination teach Applicants' currently claimed invention. In particular, neither of the cited documents in any way teaches or suggests the Applicants' claimed invention, which comprises (a) separation and recovering of 3-hydroxypropionic acid from an aqueous solution comprising 3-hydroxypropionic acid and acrylic acid by contacting the aqueous solution with an organic phase as claimed in Applicants' invention where the organic extractant is selected from the groups described in

Applicants' claims and has a boiling point lower than about 100⁰C and (b) contacting the organic phase formed in step (a) with water and distilling-off the organic extractant to obtain an aqueous acrylic acid containing solution.

The use of a relatively lower boiling point organic extractant (i.e. less than 100⁰C) is completely opposite from the teachings of GB 1,167,793 which teaches the use of a high boiling point solvent, such as a lactam or mixed solvent containing at least 50% by weight lactam (see column 2, lines 102-103). The entire thrust of GB 1,167,793 is to use a solvent having a boiling point greater than the boiling point of (meth) acrylic acid so that the (methyl) acrylic acid can be distilled from the solvent (see page 1, lines 41-45 and 71-74).

Additionally, none of the references teach or suggest the recovery of an aqueous acrylic acid containing solution by first contacting the organic phase (i.e. the phase enriched in the acrylic acid) with water and distilling-off the organic extractant to obtain an aqueous acrylic acid containing solution. GB 1,167,793 teaches that the (meth) acrylic acid product should be distilled from the organic solvent. If water was present in a system as described in GB 1,167,793, the end result after performing the distillation would be an aqueous solution containing solvent (or an immisible mixture of organic solvent and water).

The Examiner states that: "The use of a low boiling extractant is obvious for reasons of ease of recovery of acrylic acid, either as solid or as an aqueous solution." The Examiner has provided no reference or other teaching that supports this statement. Also, even if the Examiner did provide such a reference, it would still not be proper to combine such a teaching with GB 1,167,793, since the use of a relatively low boiling point organic extractant, as claimed by Applicants, goes completely against the teachings of GB 1,167,793.

As far as Applicants can discern, the teachings of Changzhou et al when combined with the teaching of GB 1,167,793 do not change the analysis set forth above. The English Language abstract provided by the Examiner only refers to the hydration of acrylic acid and methacrylic acid taking place at high temperature. It appears that the reference teaches the production of beta-hydroxylpropionic acid, but no details can be determined since a translation was not provided. If the Examiner is relying upon Changzhou et al for any other teachings, Applicants request the Examiner to provide Applicants with an English language translation of Changzhou et al.

Applicants believe the rejection of the pending Claims under 35 USC § 103(a) have been overcome by amendment and argument and request that the rejection be withdrawn.

Double Patenting

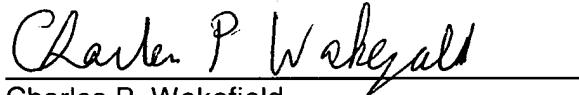
The Examiner rejected Claims 1 to 17 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-17 of U.S. 7,279,598 in view of page 1 of Applicants' specification and Badische Anilin- & Soda-Fabrik AG (GB 1,167,793) taken with Changzhou et al (Huaxueshijie, 1997, 19(2), 77-79). Applicants respectfully disagree with this rejection for the same reasons as set forth above, with regard to the section 103(a) rejection. The addition of Claims 1-17 of U.S. 7,279,598 into the rejection do not change the analysis set forth above. Applicants respectfully request that the obviousness-type double patenting rejection be withdrawn.

It is submitted that the Present Application is in a condition for allowance. On entry of this Reply and Amendment, claims 1, 3-10, 12-14, and 16-17 will be pending in the Present Application. The Applicants respectfully request reconsideration and allowance of all pending Claims.

The Examiner is invited to telephone the undersigned if such would advance the prosecution of the Application.

Respectfully submitted,

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